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SONY

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January 19, 1996

William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

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OFFICE OF THE SECRETARY

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Dear Mr. Caton:

I am enclosing an original and nine copies of reply comments by Sony Electronics Inc. in response to MM Docket No. 87-268, Advanced Television Systems and Their Impact Upon the Existing Television Broadcasting Service.

Very truly yours,

JF:p
Encs.

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In the Matter of)
)
Advanced Television Systems and)
Their Impact Upon the Existing)
Television Broadcast Service)

MM Docket No. 87-268

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REPLY COMMENTS OF SONY ELECTRONICS INC.

Sony Electronics Inc. hereby replies to the comments filed in response to the Commission's Fourth Further Notice of Proposed Rule Making and Third Notice of Inquiry in the above-captioned proceeding.

I. INTRODUCTION

Sony Electronics Inc. (SEL) is the electronics research, design, manufacturing and distribution subsidiary of Sony Corporation of America. Employing some 10,500 Americans in 25 states, in 1995 SEL manufactured over 850,000 television sets at its San Diego Manufacturing Center with an average domestic content of 80% and 2,950,000 color television and computer display cathode ray tubes (CRTs) with an average domestic content of 92%. It manufactured over 122,000 projection television sets with an approximate domestic content of 80% at its Pittsburgh Manufacturing Center. The company is also a major supplier of equipment for broadcast stations and is the only company currently manufacturing color computer CRTs in the United States. Sony Corporation of America, SEL's parent, operates the nation's only facility dedicated to adapting HDTV technology to meet the needs of the motion picture industry. In November of 1995, Sony Corporation and Intel Corporation announced the establishment of

a long-term cooperative business relationship to jointly develop hardware and software architectures and key devices for the information technology market.

As a major American television manufacturer, with a strong and growing participation in the information technology industry, SEL is strongly committed to the success of Advanced Television and its broadest possible applications to both the broadcast and information technology industries. For that reason it wishes to respond to what it believes are the unjustified concerns raised by two commenters¹ about the transmission system proposed by the Grand Alliance and recommended for adoption without objection by the Advisory Committee on Advanced Television Service (ACATS). These commenters argue that the proposed system, and specifically its provision for a transitional use of interlace scanning, is seriously flawed and will impede the convergence of computing and entertainment technologies.

II. THE GRAND ALLIANCE SYSTEM IS DESIGNED TO MEET THE NEEDS OF ALL INDUSTRIES.

At the outset, SEL would begin by stating its endorsement of and support for the Grand Alliance digital ATV system and for the process that led to its adoption. That process involved free and open discussions and the participation of all interested parties and all segments of the private sector — including the computer industry. After over eight years of effort and hundreds of millions of dollars of investment, the result has been the development of a digital technology that provides unprecedented business opportunities for all sectors of interested industries — television, computer and telecommunications alike. It is a technology that has enabled the United States to “leapfrog” earlier analog systems and restore the United States to world

¹ See Comments of Apple Computer, Inc. (hereafter Apple Comments); Comments of the Information Technology Industry Council.

leadership in the area. Only in the United States have all industry sectors come together to forge a standard that will meet the needs of all.

This last point is most important. The Grand Alliance system is not designed to serve the needs of any one industry, such as the television industry or the computer industry, at the expense of others. Indeed, the contrary is the reality. Although initially contemplated as a new and much improved method of broadcasting television, it has developed far beyond that. When the computer industry expressed the concern that it be able to avail itself of the benefits of this new technology, ACATS conducted two interoperability reviews that identified a variety of characteristics necessary to ensure interoperability with computers and other information technology products. The presently proposed Grand Alliance system includes the interoperability criteria recommended by the ACATS interoperability panel, including, most importantly, square pixels and the use of progressive scan — neither of which is dictated by the needs of the television industry. The incorporation of these criteria ensure that the computer industry and its customers will be able to fully avail themselves of the benefits of advanced television.

III. THE ARGUMENTS AGAINST THE USE OF INTERLACE ARE WITHOUT JUSTIFICATION.

As indicated, some few argue that, despite the many accommodations made to meet the concerns articulated by those in the computer industry, any use of interlace scanning, which is vital to the television broadcast industry, is unacceptable. They argue that even a transitional use of interlace will impede the marriage between broadcasting and computing and retard the transition to ATV, deny the benefits of ATV to those of low income, and increase the cost of television/computers. They also argue that high quality text and graphics cannot be read clearly on interlaced sets and that there is a potential for interlace to become the standard means of

transmission. Finally, they argue that transforming an interlaced signal into a progressive signal at the receiver is an expensive and imperfect solution.² SEL believes these arguments are without justification.

First, rather than retarding the transition to ATV, the availability of interlace will have precisely the opposite effect. For it is the entertainment applications of the new technology, and broadcast HDTV particularly, that will drive the acceptance of advanced video technology by the public and bring about the economies of scale that will benefit both consumers and the television and computer industries. One need only compare the household penetration rates of televisions and computers to see that this is so. Without the availability of an interlace transmission mode these benefits would be lost because the television broadcast industry would not be able to utilize the full benefits of ATV. Not only would a progressive system at full HDTV resolution (1920 x 1080) and 60 frames per second be prohibitively expensive, but one does not yet exist that will permit the acquisition and broadcast of live television images, such as sports programming, within the bandwidth constraints under which a broadcaster must operate — and which do not apply to computer applications.³ Such live programming is a vital segment of the free, over-the-air broadcast service that must remain available to all citizens.

While it is acknowledged that progressive scan is better for some applications of data display, especially at close range, it must again be pointed out that this is not the only use to which ATV will be put, nor is it the original purpose for which it was developed. Beyond that,

² See Apple Comments.

³ See L. Thorpe & T. Hanabusa, *If Progressive Scanning Is So Good, How Bad Is Interlace?*, SMPTE JOURNAL, Dec. 1990, 972.

however, the quality of current HDTV interlace transmissions is excellent, very close to that of progressive on normal program picture content and more than acceptable for certain types of data display. Indeed computer-generated graphics and text are already a staple of our present day 525-line interlaced NTSC system, and they are vividly portrayed without meaningful artifacts. The more-than-acceptable quality of HDTV interlace transmission is particularly evident where both video images and computer-based information are incorporated and close range viewing is not involved, such as in a classroom setting, and refutes the concern expressed in this regard.⁴

As to the fear that interlace, once established, will become the standard means of transmission and the television industry will never advance to an all-progressive system, history indicates otherwise. From its beginning the television industry has consistently adopted the latest improvements (*e.g.*, our color system, stereo sound, and the use of digital technology in broadcast stations) as soon as it became practical to do so. And there is no reason to believe that it will be any different with progressive scan. The technological developments that will ultimately lead to cost-effective progressive scan will continue. Indeed, it is in the interest of both television and computer manufacturers, faced with the growing convergence of the two industries and the cost-benefits to be derived therefrom, that it do so. SEL, for example, has always worked closely with the computer industry and will continue to do so as it enters the PC market. Even now it has commercially available a 1920 x 1080 progressively-scanned monitor with a 16:9 aspect ratio that refreshes at the rate of 60-72 Hz — the specifications that the

⁴ Apple Comments at 6.

computer industry requires.⁵

Further support for ultimate transition to an all-progressive system lies in the fact that most primetime television programming (60-70%) is produced on film and will be transmitted at full HDTV (1920 x 1080) resolution with 24 fps progressive scan under the Grand Alliance system. This facility is part of the ingenuity of the highly flexible Grand Alliance system.

Contrary to the assertion that de-interlacing at the receiver is “an expensive and imperfect solution,”⁶ de-interlacing is a well-known technical art already in broad usage. In any television broadcast studio today images are frequently passed back and forth between interlace and progressive. De-interlacing is also in current use in many high-end television receivers, and its cost will only be lowered with economies of scale.

IV. CONCLUSION

SEL would make three points in conclusion. First, it seems incongruous at best that some members of an industry so vigorously opposed to inappropriate government regulation of its business should now be urging the Federal government to effectively outlaw another industry’s use of a technology vital to its interests and developed at great expense. To deny television broadcasters the use of interlace would deny them the benefits of ATV. Furthermore, it is totally unnecessary, since the interests of the computer industry are fully protected and supported by the Grand Alliance system.

Secondly, there is no “doomsday” scenario here as suggested by some by having both

⁵ This monitor was demonstrated for the Commission in connection with its recent *en banc* hearing on December 12, 1995.

⁶ Apple Comments at 6.

interlace and progressive formats. Interoperability is a question of degree. In the spirit of inter-industry co-operation, the television industry went a very long way to be all-inclusive and accommodate the interests of the computer, telecommunications and motion picture industries. Indeed, the very genius of the Grand Alliance system is the manner in which this was accomplished.

Finally, the continued leadership of the United States in digital ATV, achieved through the creation of the Grand Alliance system, is critically dependent upon the timely development of a marketplace. To require an all-progressive ATV system now would inevitably delay the introduction of ATV in the United States and squander a unique and hard won competitive advantage for this country. The Grand Alliance system fosters co-operation among all parties and provides all a stake in the future of ATV. It should be approved.

Respectfully submitted,

SONY ELECTRONICS INC.

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